TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

August 24, 2016

Dr. Stephanie Fiorenza Ph.D.
Atlantic Richfield Company - Environmental Technology
501 Westlake Park Blvd. Rm. 20.101C
Houston, TX 770749

Subject: BP Yerington - TestAmerica Irvine Root Cause Analysis and Corrective Action Implementation

Dear Dr. Fiorenza,

It is the policy of TestAmerica to produce accurate and legally defensible data of known quality, to provide employees with guidelines leading to an understanding of the ethical and quality standards required in our industry, and to provide service to our clients that exceeds their expectations. The recent quality and service related errors experienced by BP in support of the Yerington project did not live up to our standards and we deeply regret the inconveniences that this has caused for BP, its consultant, Brown and Caldwell, and its program and data validation partner, Environmental Standards (ESI). We are fully committed to rectifying the root causes for these disruptions and implementing sound corrective actions in order to return to the level of quality and service that is expected of us, and regaining BP and its program partners' confidence with TestAmerica.

Problem Summary - Alkalinity, Metals and TOC Analyses:

Beginning on February 5th 2016, TestAmerica was impacted by a computer virus that affected some of our Windows operating systems. Please note, that no client data was affected by this event and the virus was immediately isolated and contained. However, problems stemming from this event necessitated software and hardware reconfigurations at the instrument level. The outcome of this resulted in instrument import/export and reporting issues that directly impacted our alkalinity, metals, and TOC data and as an outcome, the ability to accurately report results in a timely fashion. The initial actions taken to address these methods worked to further compound the reporting issues as did the identification of deficiencies within the lab. In general, these were not identified as systemic issues, but a result of several events occurring simultaneously.

In the case of both alkalinity and TOC, we were forced to switch from an automated to a manual process in order to proceed with analysis and/or data loading. For TOC, due to the special handling requirements specific to Yerington, an intermediate calculation step using a spreadsheet was required to take data results from the instrument and convert for LIMS reporting purposes. For metals, we were unable to generate the required validation packages due to the procedure used to lock down the instrument computers during this time. When access was regained, raw data was incorrectly associated during reprocessing, resulting in discrepancies between the Level II data and the Level IV packages. In addition, dilution factor errors were also identified.

Although each method had a unique problem to overcome, the outcome was that at least one, sometimes multiple, revised reports were issued for the same job number, thus creating questions about the quality of the data and leading to lengthy delays with meeting our obligations to BP and its program partners. In response, a formal investigation was launched into each event.

Root Cause:

During the course of laboratory investigation into each of these issues, specific deficiencies were identified, and from the investigation, we determined the following root causes:

- Only one alkalinity method chain, for both auto and manual titration, available in TALS.
- Lack of traceability, incomplete documentation practices, inconsistent naming conventions specific to the IEC and Method files, and inconsistent dilution factor documentation.
- Inaccurate spreadsheet programming and validation, inadequate data review, and poor documentation.

Corrective Action:

In response to these root causes, there were specific corrective actions taken to address each of the identified issues. In each case an investigation was launched, root causes identified and corrective actions implemented. These actions were multi-faceted and included Corporate QA involvement: reprogramming and validation of spreadsheets, documentation and traceability of dilution factors, naming conventions and weights, and associated retraining. Due to the nature and type of the issues surrounding both the metals and TOC events, formal letters outlining the corrective actions taken were sent directly to ESI and/or ESI and Brown and Caldwell. The alkalinity reporting issue was detailed on the quarterly BP call in May and further addressed directly with ESI.

In addition to the corrective actions, the laboratory also initiated other changes in order to strengthen its technical, client service, and quality assurance systems. The first of these changes, in April of this year, was to make Adriana Schow the Metals Department Manager. Adriana is a dynamic manager who has more than 11 years in this industry. She has a BS in Chemistry as well as Petrochemical Engineering and is well versed in not only the analytical side of metals, but also in systemic processes, time management and quality assurance.

Secondly, we hired a new Quality Assurance Manager, Kathryn Chang, in May of this year. Kathryn has more than 12 years of experience in an environmental laboratory, and for the past eight years worked under my leadership as a quality assurance assistant in a competitor laboratory, Eurofins Calscience. She has a BS in Chemistry as well as Computer Science. Further, she is a Certified Quality Auditor through the American Society for Quality. In June, Kathryn attended the internal Quality Assurance Management training conducted by TestAmerica's Corporate QA group in order to expedite her on-boarding. Her technical strengths lie in implementing quality assurance systems, problem-solving, QC trending, change management and internal auditing.

Thirdly, our most senior and experienced project manager, Patty Mata, who manages the BP Yerington program, was provided with additional project support through the hiring of a technically sound project management assistant. Further, our client services group is now able to leverage other project management staff to assist Patty with overflow and management of lesser day-to-day tasks that do not directly impact the BP program.

And finally, I accepted the Irvine Laboratory Director position back in October of 2015. I have more than 23 years of experience in this industry, the last six of which were spent as both the Technical Director and then Quality Assurance Director for Eurofins Calscience. From 2007 to 2009, I was a Technical Program Manager with Calscience and was directly responsible for ensuring that the BP LAMP program and its partners were supported. From this experience, I fully understand the scope and importance of the program and the associated technical requirements, and I am continually working with my team here in Irvine to ensure that your needs are met.

In conclusion, TestAmerica has a long-standing relationship with BP and the Yerington project and we are well versed in managing the complexities associated with this work. We truly value our relationship with BP and understand that the events of the last few months have resulted in concerns in relation to our dedication and ability to support the LAMP program. Please be assured that TestAmerica is as committed as ever to serving BP and its program partners, and takes very seriously the need to perform at a high level from both a quality and a service standpoint.

Should you have any questions related to the investigations or corrective actions, please do not hesitate to contact me at linda.scharpenberg@testamericainc.com, or by phone at 949.261.1022 x245.

Sincerely,

Linda Scharpenberg Ed.D.

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TestAmerica, Irvine - Laboratory Director